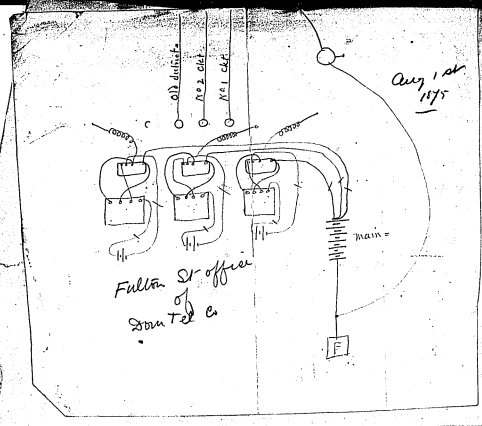
Scrapbook Fragment, Cat. 30,100

This set of 12 unbound and unnumbered scrapbook pages, covering the period August-December 1875, was apparently once part of a larger scrapbook. (Some of the pages in Unbound Notebook, Vol. 9 were probably also removed from the same scrapbook.) The notes and drawings are by Edison and Charles Batchelor and relate to the electric pen, etheric force, and telegraphy. There are also clippings relating to scientific and technological matters, and an unused Domestic Telegraph Co. order form for the installation of instruments. Three loose items, which appear to have been attached at one time to scrapbook pages, have also been filmed.

THE REDUCTION RATIO FOR THIS DOCUMENT IS 15:1



Form 3.

THE DOMESTIC TELEGRAPH COMPANY,

General Offices, 52 Broadway,

NEW YORK.

NEW YORK, _____ 187

TO THE DOMESTIC TELEGRAPH CO.

You will please place _____ of your Signal Instruments in premises No. _____ Street, Room _____ in telegraphic communication with your Company's District Office, entitling _____ to the Messenger, Police Patrol and Fire Alarm service of your Company upon the terms set forth in your circular; and as a rental for each of said Signal Instruments _____ hereby agree to pay to the Domestic Telegraph Company, One Dollar per month, and their usual charge for service when signaled for.

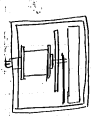
It is hereby mutually understood and agreed that this Company will in no case be liable beyond the sum of One Hundred Dollars for any loss or damage that occurs during, or in course of, the employment of any of its Messengers.

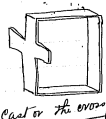
NO CHARGE FOR CONNECTING OR REMOVING SIGNAL INSTRUMENTS.

These dueling these instruments, please date, sign and forward this paper to the above offices.

Signed _____

Street, _____





Cast or the cross piece fast in

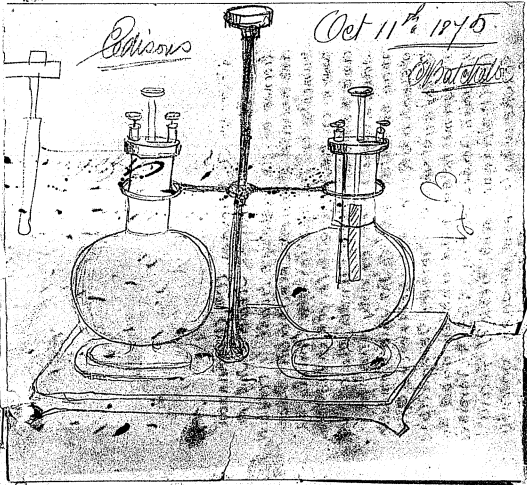
Shows a perfect round as the frame is perfect as the way it shows the other.

Oct 1st 1915

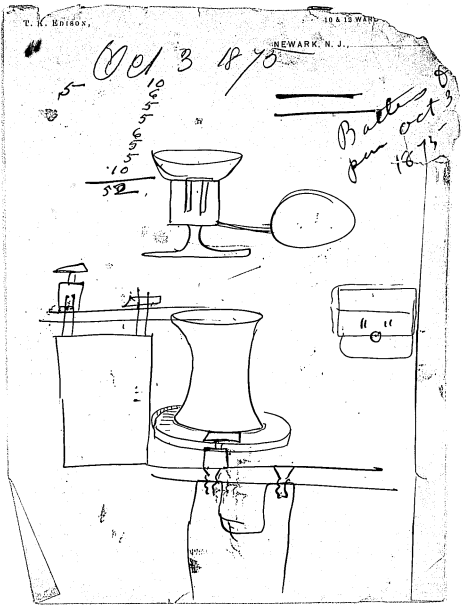
Edisons

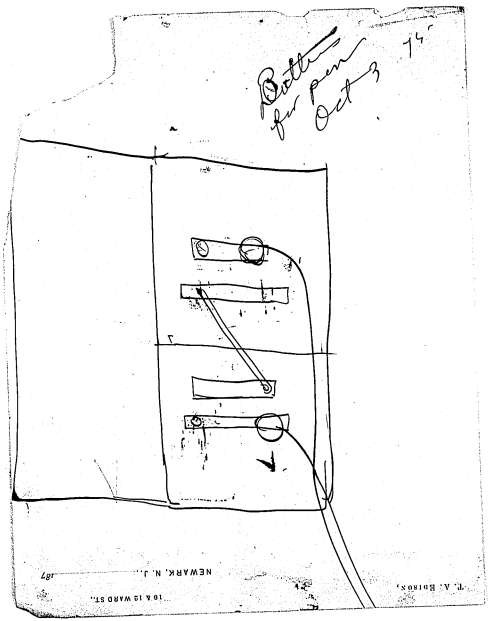
Oct 11th 1915

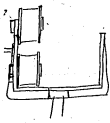
Notebook



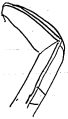
T. A. EDISON, 10 & 12 WARD
NEWARK, N. J.

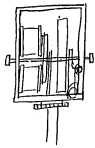



Better
for pin
Oct 3 74
NEWARK, N. J.
10 A 13 WARD ST.
A. BORDEN



square inside of rubber + hole cut in other screw

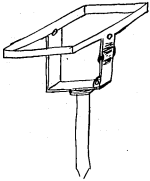




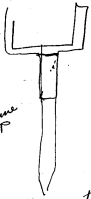
frame a thin square with cross piece where 2 contact screws are. Spring through + thr. spring screw

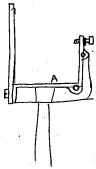
Pens. 1875

Jop. 14

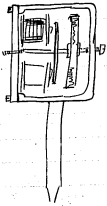


Frame made like this cast in frame work being better or less when dressed





A cast iron white frame B wrought iron bolt



Cast iron frame with wrought iron magnet back pieces on

(1) G. G. T. says: I have a small telegraph instrument for lessons, consisting of a key and sounder, the current being obtained from a single battery of zinc, copper, and blue vitriol. How could I make it work an electric light? What material would be required, and how should I arrange it? A. See 838, vol. iii.

(2) W. C. asks: 1. What will be the strength of the following? Three cells of Daniell, zinc 4½inch inches, carbon 4½inch inches, porous cups 6 inches high, 3inches diameter, and ¼ inch thick; one; or a Grenet battery of 3 cells, carbon 4½ inches, and carbon plates 4½inch inches? A. Or short circuit, the Bunsen. On long circuit the Grenet. 2. Can the electric light be produced by the battery of 3 cells of Daniell? A. No, by either. The 50 cell Grenet may do it. 3. Is the middle plate of a three-cell secretions made of carbon? If so, 3/8 as good as the other cells with platinum? A.Yes. 4.Where can I find directions for making batteries and their uses? A. See vol. 32.

(3) E. G. S.—There would be no action in a battery of zinc only, arranged as you propose.

(4) A. R. says: I have a telegraph line of 7 of a mile in length, with two relays on it made of No. 24 cotton-covered copper wire, 1 ft. of wire in each relay. The battery is of the Leclanché and Callaud pattern, six jars each. The current is strong enough to produce a very disagreeable sensation on the tongue when it is placed between the wires of the main line. The relays will not work with sufficient force to operate the sounder or the register. Will you please tell me why it is the local battery will work the relay on a 7 foot circuit very well; but if I put my tongue between the wires of the local battery, I cannot discover any current passing. What is the matter with the relays, and what shall I do to make them work? A. Do you use a ground for a return wire? If so, try another wire in place of the ground wire.

(5) A. O. Jr. says: In *Science Record* for 1876 some one recommends chromium as a resistic coil. I want to galvanize copper wire, and have had plated, covered with a film of what purports to be chromium. Will it answer for resistic coil? A. No, unless. If chromium can be so deposited, what salt of the metal is there that can be used? A. The chromium is still deposited in vogue for low electricity, but is pretervised mechanically, and then renewed into the lead.

(6) G. H. says: Can a lightning rod lose its properties as a conductor, after standing for a few years and becoming considerably tarnished from exposure? Is it more desirable to use such a rod than none at all? I ask these questions because our factory was recently struck by lightning, the electricity leaving the rod after passing down a short distance and entering the building, where it expended its force among a lot of iron castings, which lay upon the floor directly opposite that part of the wall to which the rod is attached. The notice upon these castings is shown by reproduction where the iron seems to be eaten as if by some acid, though the roughened surface is somewhat brighter and looks as if a small quantity of smoke on the lead been dropped there. I cannot find that the fastenings of the rod are out of order, and therefore somewhat wonder if electricity should leave it, unless its conducting qualities are impaired. Would republishing the rod restore its efficiency? A. The spot of the rod would not affect its usefulness, unless the fastenings had been by rust, during the long power, or the rod was disinsisted to stop the flow of electricity. It is not a question of the portion which goes into the earth, and what we know whether it is ineffective, how deep it runs into the ground, and what the condition of the earth about it is in regard to moisture; also whether the rod contains any joints, or whether it is one continuous rod. What metal is the rod composed of?

(7) G. B. asks: Of what shape must I construct a magnet in order to gain the most power? A. Of horseshoe shape. 2. What power can be got per square inch? A. This is proportional to the size and number of turns of the wire and the strength of the battery. 3. What is the best way to power diminish as the distance is increased? A. As the square of the distance.

(8) J. M. says: I tried to make ground coal, notion by taking two pieces of sheet tin, 6inches square; I soldered copper wire to them and inserted in small earthenware pot in ground, coal; would not work. I then put 36 feet of wire in the ground. A. Your plate was too small. 2. I made a battery in the following manner: I cent jar with coil of copper in bottom, and a zinc fitting the jar, with hole in center and suspended along the copper, with wire attached. A wooden cup was put in the jar with holes in the bottom for the wires vitriol. I let it stand about 6 hours, and it gave a current. I made a battery house, and what do you think of it? A. Your battery is a modification of the Daniell. We cannot see that it has any peculiar merit. 3. How is the electric light made? A. See p.25, vol.35.

(9) H. P. T. asks: Is there anything gained in a Callaud or gravity, battery by covering the zinc with vesteal paper? Does it reduce the working strength of the battery? In case of accidental disturbance and mixing of the solutions, does it prevent the deposition of copper upon the zinc? I find after long use that the paper is covered here and there with crystals of copper; but upon removing the paper I sometimes any trace of copper upon the zinc. A. If the gravity battery is properly put together, so that the fluids do not mix, there will be no local action. The paper will do no harm and not much good.

The Hellograph of Mr. Mance.*

By Dr. Noad.

Through the general introduction of Electric Telegraphy, and the all but a viceral adoption of the Morse system, it occurred to Mr. Mance—who has the advantages of a thorough knowledge of both, and the privilege, if it can be called one, of a high confidence in a country with plenty of sunshine—to develop and improve the existing application of heliography. His aim has been to produce an instrument which is very compact, very portable, easily set up, and easily worked. Although he was first in the field with instruments (which are still preferable for permanent stations), he is now superseded in that instrument of the size here shown is still that is requisite. The chief objection to the adoption of the non-telegraphic is that we cannot command the sun to shine in the same manner that we can control a galvanic battery; and it must be understood that Mr. Mance advocates his system only as an auxiliary to other systems of field telegraphy. It would come into operation at distances when other methods are useless or tedious; when, and it composes favorably with existing systems of signaling in compactness, range, rapidity of communication, and, last, in portability. The flashes are inviolate to any one placed far to the right or left of the direct line, so that, from elevated points, for distant communications could be kept up with a fortress without the besiegers having any suspicion of the fact.

It would be superfluous to give instances, when within the last few years the use of these instruments might have brought about the most important results.

The instrument consists of a light, but firm, tripod-stand, similar to those used for prismatic compasses. On the top a plate is moved by a tangent screw which admits of quick and slow motion, and the plate carries on a pins semicircular ring, which again carries on pivots the round mirror, the silvering of which is removed in the center for the space of a circle about 3-10th inch diameter. To the plate is also attached a simple key, which is pressed down and springs back like an ordinary Morse key. This key is connected with the top rim of the mirror by a steel rod, which can be lengthened or I shortened—as occasion may require—by turning the handle and screwing the rod through the small brass ball which secures it to the edge of the mirror.

By means of the last-named adjustment and the tangent-screw the plate can be altered, as the case may require, a little to the right or to the left.

From 12 to 15 yards in front of the instrument is placed a stiff-rod. This rod is to be made to spot exactly in a line with the center of the hellograph and the distant station. A small steel needle in the spot, and a wooden cross-piece marks where the final rests when not directed on the opposite station.

The instrument can be set up ready for working in a few minutes. When the exact position of the distant station is not known, a flash of sunlight must be thrown in the direction of the most likely points, and this must be continued till it is answered by a flash, which indicates that a distant signalling party is on the look-out. Then, after releasing the tangent-screw, the glass must be turned in a somewhat angle, and the sightingline must be directed in a line with the distant station by looking through the small aperture in the center of the mirror. When this is effected, the stud must be raised or lowered till it is in the line of vision as a level with the center of the glass and the distant flash, and the short cross-piece must be placed at right angles to the upright, about a foot below the stud. After being thus adjusted the instrument must not be moved.

The spot will be observed gradually to rise or fall, according to the direction in which the sun is apparently moving. The handle of the key, or the tangent screw, or both, as the case may be, must be turned slightly after every ten or fifteen words, to lessen, as far as possible, that the center of the spot shall be on the stud when the key is pressed down.

When the sun is rather low in the heavens, and behind the signaller, it becomes more difficult to direct the flash with accuracy. In consequence of the obtuseness of the angle the spot loses its circular form, and becomes more or less elliptical in shape, and the latter is required to work frequently with the sun in this position, the employment of a second glass on a light tripod-stand is recommended.

But it would be useless here to enter more into the minutiæ of working the instrument: suffice it to say that, in experienced hands, twelve words and more per minute have been obtained, while others state that nine—after a fortnight's practice—could attain only from four to five words per minute. As to the distance, 10 and 20 miles—and in very clear weather 40 miles—have been obtained.

A number of officers of the Indian Army have tried and reported upon the instrument, and—with the exception of one—all report most favorably of the system as an auxiliary to existing systems, and efforts are being made at the present moment to insure their adoption for the Indian Service by the authorities.

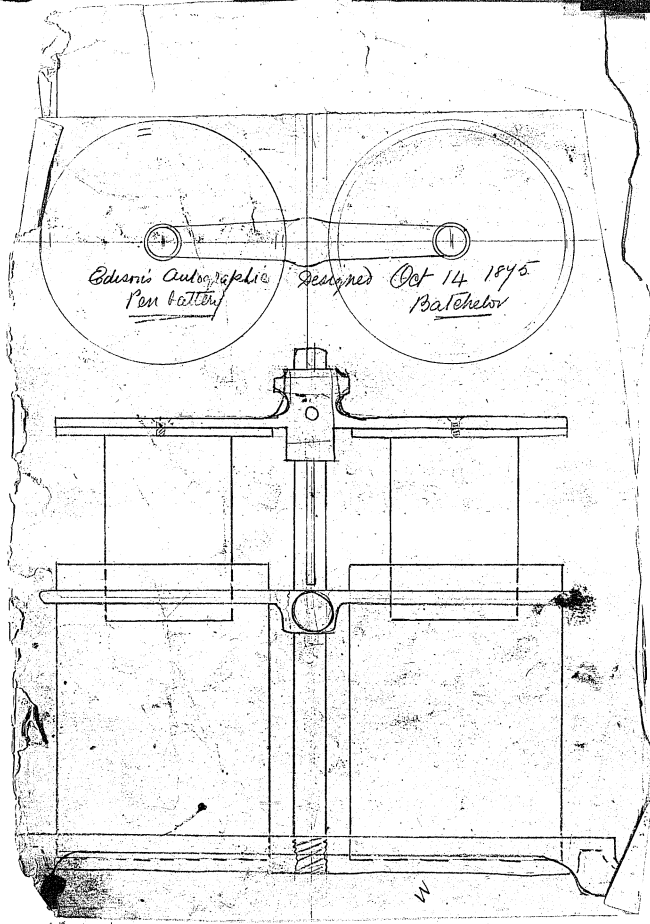
*Read before the Society of Telegraph Engineers.

THE MAGNETISM OF THE EARTH.

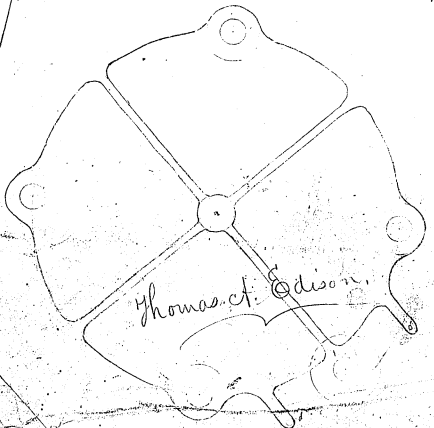
(2412.)—In letter 2393 "Elektron" asks "What does magnetism go to show? Is it not that the interior of the earth is all molten fire?"

Answer.—No. That theory has long been disproved. For two reasons, at times active, within a short distance of the earth's surface, we have reached the solid crust, showing that no molten matter communicates again. The shape of the earth also shows that the interior portion must be much more dense than the observed density of the so-called crust, which indicates that it must be solid or nearly so. Lastly, a homogeneous mass, rotating in a magnetic field, will have its magnetic moment of inertia in the proportion 2/5 ths. Although the earth's polar and equatorial diameters are as 299 to 300.

Thank


Edisons Autographic
Pen holder
Designed Oct 14 1895
Batchelor

Dec 17, 1878



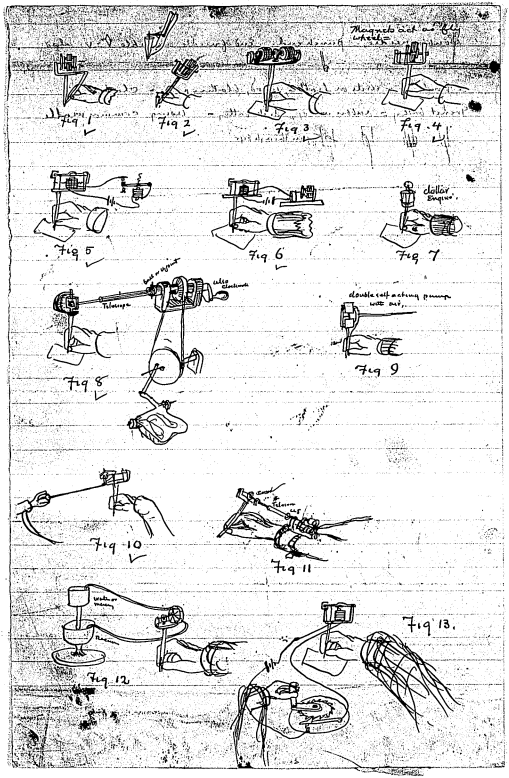


Fig 1
Fig 2
Fig 3
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Fig 5
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Fig 7
Fig 8
Fig 9
Fig 10
Fig 11
Fig 12
Fig 13.

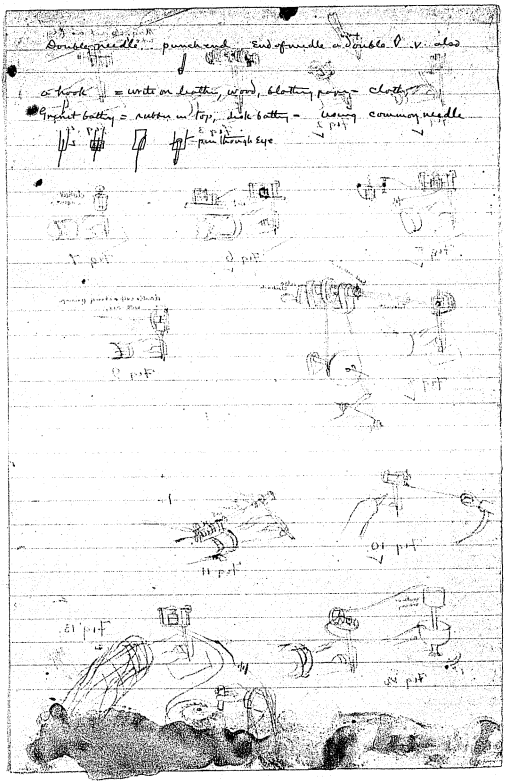

Double needle... punched end of needle a double l. v. also
a hook = write on leather, wood, blotting paper, cloth
Impact bodkin = rubber w/ top, dark bodkin = leaving
pen through eye

Fig 14

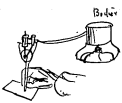


Fig 15

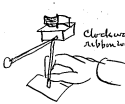


Fig 16.

Ink roller – Cloth duck; woven yarn. felt Rubber covered with cloth a Printers roller; do covered with cloth, compressed sponge, soft leather Rubber sponge a

Fig 17

Fig 18

Fig 19

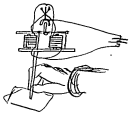


Fig 20

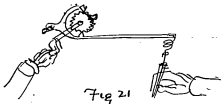


Fig 21

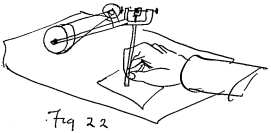
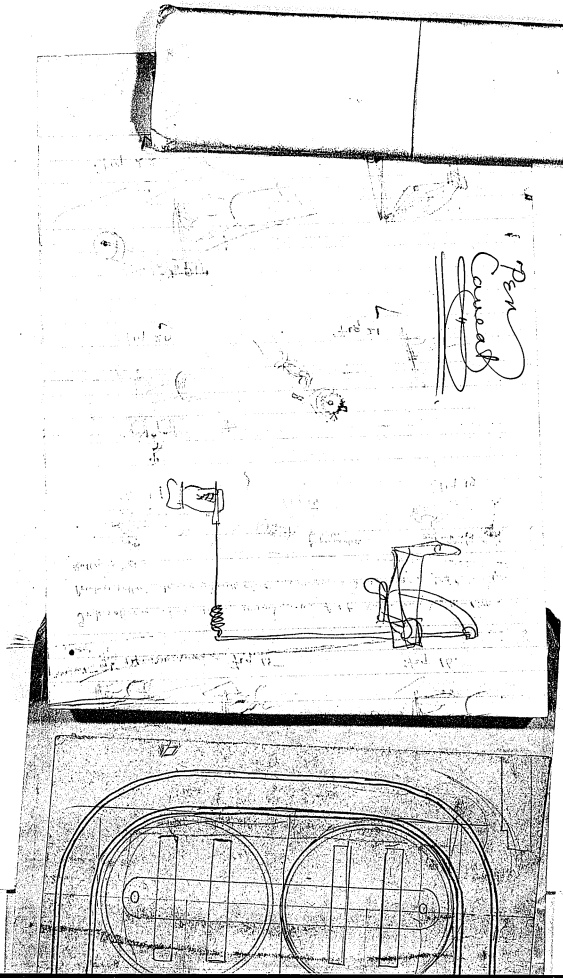
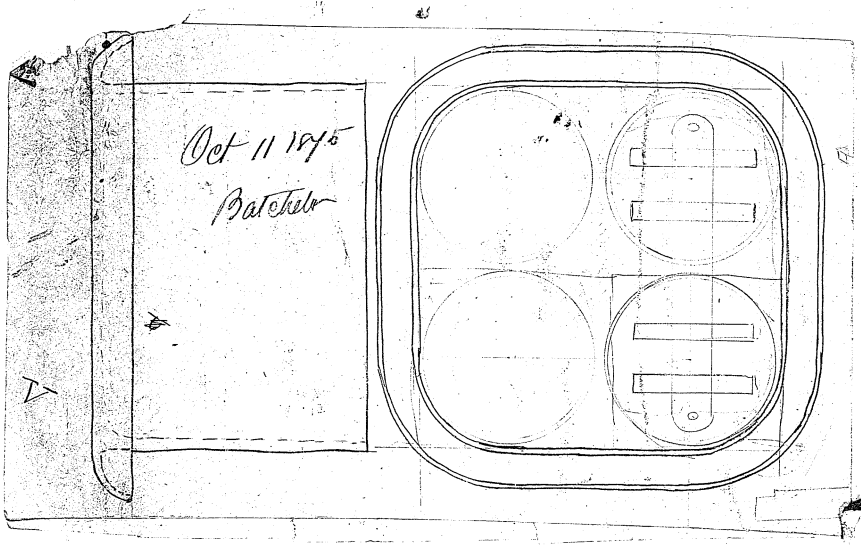
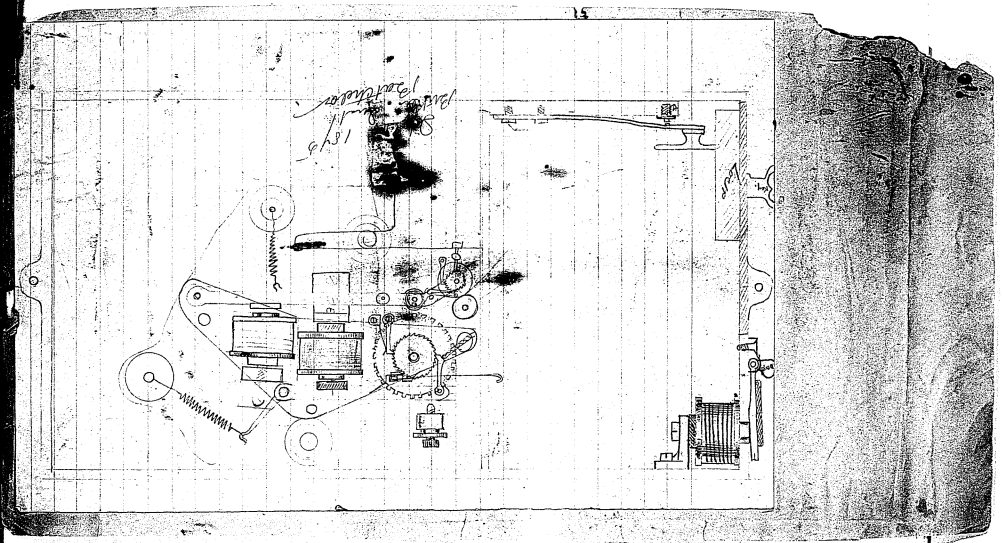


Fig 22

Fig 23?




Oct 11 1945
Batchelor

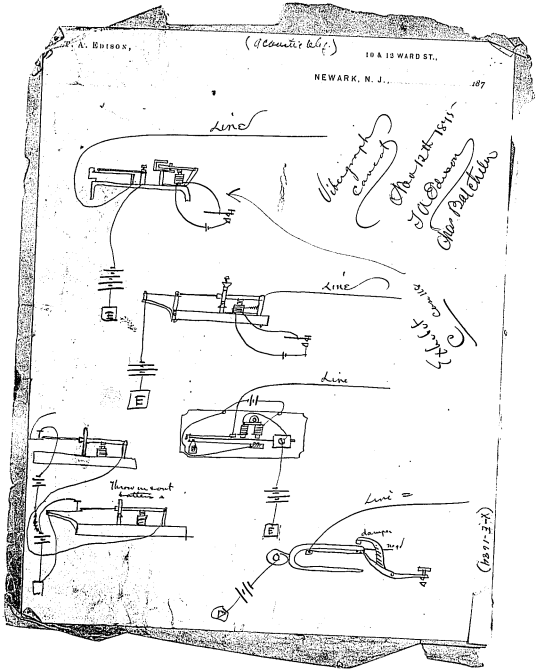


T. A. EDISON,

(Facsimile clip)

10 & 12 WARD ST.,

NEWARK, N. J., 187



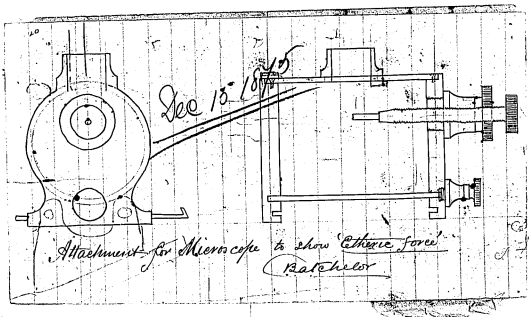
Rec 18th 1875
Chas Batchelor

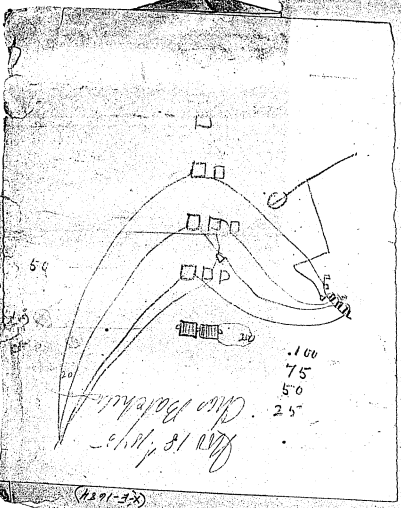
1100 24

Wind screw fan

Specks A.

perfect on 1½ Cells beating on Brady No 4. coil 45°.
Works little sad below on 2 old 1½ cells with shaky spin on the turns from yellow to brown & green looks if burned not be enough spacing. — On new battery beating 59. goes perfect fast direction satisfactory with large Jam cap =

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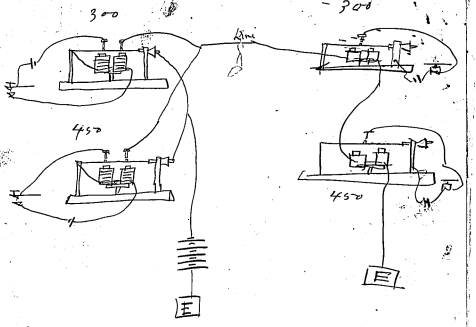
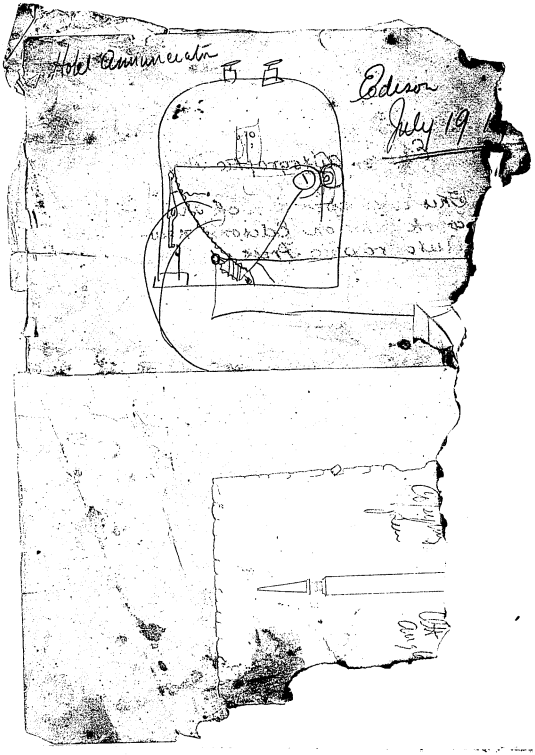
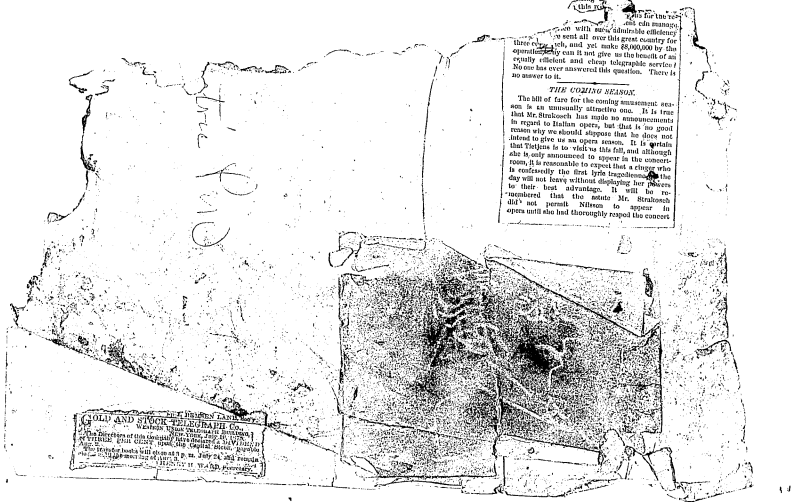
T. A. EDISON,

10 & 12 WARD ST.,

NEWARK, N. J., 187



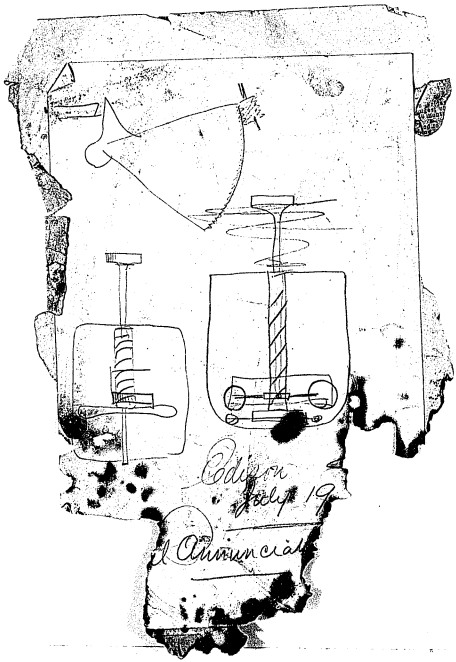

Hotel Commodore
Edison
July 19



...ow with such admirable efficiency
...u sent all over this great country for
three cents, and yet make $6,000,000 by the
operation, why can it not give us the benefit of an
equally efficient and cheap telegraphic service?
No one has ever answered this question. There is
no answer to it.

THE COMING SEASON.

The bill of fare for the coming amusement season is an unusually attractive one. It is true that Mr. Strakosch has made no announcements in regard to Italian opera, but that is no good reason why we should suppose that he does not intend to give us an opera season. It is certain that Titiens is to visit us this fall, and although she is only announced to appear in the concert-room, it is reasonable to expect that a singer who is confessedly the first lyric tragedienne of the day will not keep without displaying her powers to their best advantage. It will be remembered that the estate Mr. Strakosch did not permit Nilsson to appear in opera until she had thoroughly reaped the concert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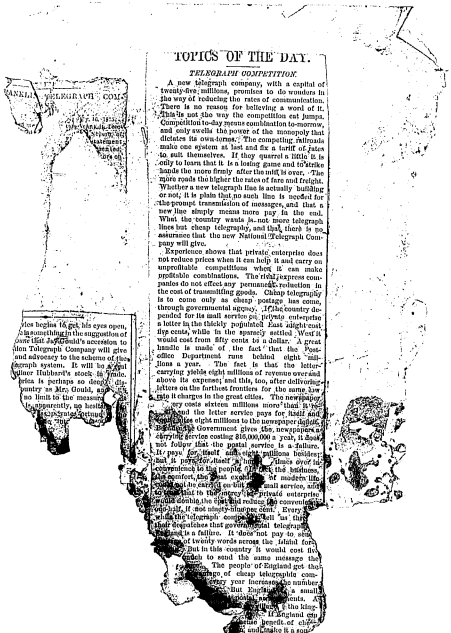
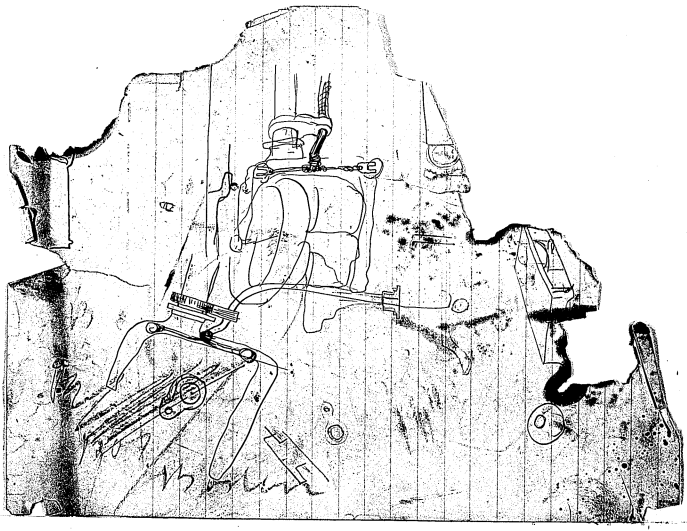


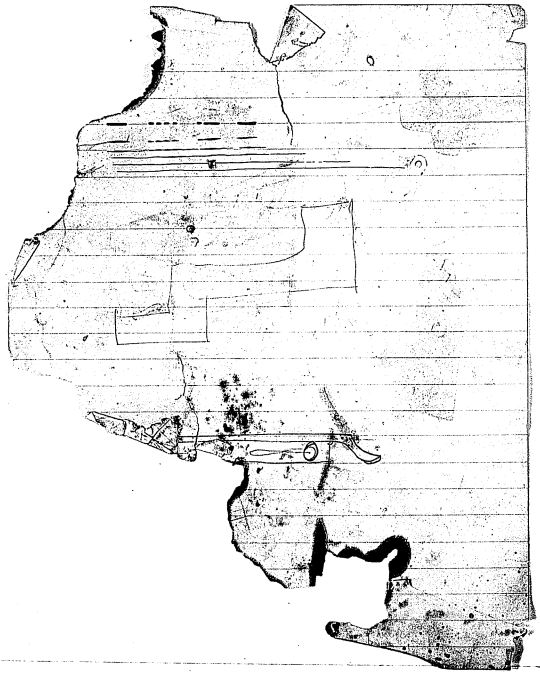
TOPICS OF THE DAY.

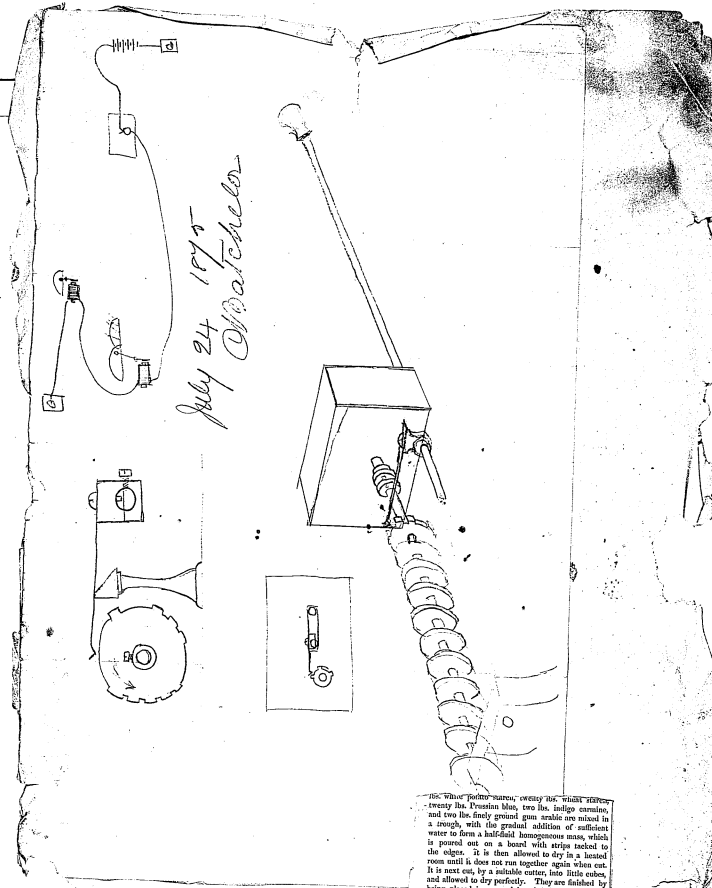
TELEGRAPH COMPETITION.

A new telegraph company, with a capital of twenty-five millions, promises to do wonders in the way of reducing the rates of communication. There is no reason for believing a word of it. This is not the way the competition cat jumps. Competition to-day means combination to-morrow, and only swells the power of the monopoly that dictates its own terms. The competing railroads make one system at last and fix a tariff of rates to suit themselves. If they quarrel a little it is only to learn that it is a losing game and to make handle the more firmly after the mill is over. The more roads the higher the rates of fare and freight. Whether a new telegraph line is actually building or not, it is plain that no such line is needed for the prompt transmission of messages, and that a new line simply means more pay in the end. What the country wants is not more telegraph lines but cheap telegraphy, and that, there is no assurance that the new National Telegraph Company will give.

Experience shows that private enterprise does not reduce prices when it can help it and carry on unprofitable competitions when it can make profitable combinations. The rival express companies do not effect any permanent reduction in the cost of transmitting goods. Cheap telegraphy is to come only as cheap postage has come, through governmental agency. If the country depended for its mail service on private enterprise a letter in the thickly populated East might cost five cents, while in the sparsely settled West it would cost from fifty cents to a dollar. A great handle is made of the fact that the Post-office Department runs behind eight millions a year. The fact is that the letter-carrying yields eight millions of revenue over and above its expense; and this, too, after delivering letters on the furthest frontiers for the same rate it charges in the great cities. The newspaper service costs sixteen millions more than it pays, and the letter service pays for itself and eight millions to the newspaper deficit. In this way Government gives the newspapers a carrying service costing $16,000,000 a year, it does not follow that the postal service is a failure. It pays for itself and eight millions besides, and it pays for itself as long as it does over its experience in the people. If the business, as confers, the great exchanges it modifies life, could be carried on like the mail service, after the same kind to the utmost of private enterprise would develop the first and reduce the conveniences of life, if not ninety-nine per cent. Every time the telegraph companies tell us that they dividends that government telegraphy is a failure. It does not pay to send a of twenty words across the Isthmus for But in this country it would cost five cents to send the same message the The people of England get the of cheap telegraphic com- every year business is nabled But England is a small geographical area. And the kingdom, if the king- of England en- benefit of cheap and also is a more of







Clock.—A glass pendulum a large size, thick barometer al either end about 2 or 3in. re must fairly fit the glass ey must of force there is ay fit, reaching the ends of ss the two tubes reach; fi ld, and drill a hole through at inch in diameter, to which tube must be drilled from tubes, and exactly opposite ole may go fairly through, when cleaning off the burr ad of the glass tube and the ucid a piece of shellac, with ttaken on to the glass rod ; pped in the brass pin right ough the tin, and cementing

When cold, clean off the cess of shellac with the ittle rod and well cemented, the ulum bob may be put on safely. The great object of so is to make the setting of it as easily as may run into gruvy moisture, and all turpentine, as very easily cut by a good drill ill-fitted pin, will be a great fa ct. The brass tube must no ter of Paris if preferred. —Dr. Phelps, Bristol.

A "new" instrument was introduced to the musical world at a reception held by the Duchess of Sidmaha last week. It is nothing more than the "musical glasses," much improved and skilfully played by the Chevalier Furtado Coelho. The instrument is named the copophone, and contains 32 glass goblets of various sizes, which are attached to a sounding board by means of brass tubes. Its compass is two complete octaves with semitones, six additional glasses being used for the convenience of the performer. The instrument is said to be unequalled for the brilliancy and sweetness of the tones produced, and we are informed that no less a judge than Sir Julius Benedict expressed himself warmly in favour of the new "musical glasses."

lbs. wheat flour, starch, sugar lbs. wheat flour, twenty lbs. Prussian blue, two lbs. indigo carmine, and two lbs. finely ground gum arabic are mixed in a trough, with the gradual addition of sufficient water to form a half-fluid homogeneous mass, which is poured out on a board with strips tacked to the edges. It is then allowed to dry in a heated room until it does not run together again when cut. It is next cut, by a suitable cutter, into little cubes, and allowed to dry perfectly. They are finished by being placed in a revolving drum, with a proper quantity of dry and finely pulverized Paris blue, until they have a handsome appearance. The cost is about 12 cents per lb.

Black Stencil Ink. — Take of shellac two parts, borax one part, soft water ten parts, gum arabic one part, lampblack sufficient quantity, indigo sufficient quantity. Boil the shellac and the borax in the water until they are dissolved, add the gum arabic, and withdraw the mixture from the fire. When cold add lamp-black to bring it to a suitable color and consistence, and lastly, a very small quantity of finely-powdered indigo to give it a "jet" shade. Keep in glass or earthenware vessels.

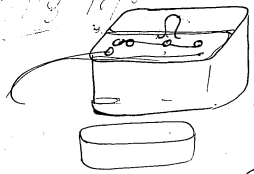
Imitation Ground Glass that Steam will not Destroy. — Put a piece of putty in muslin, twist the fabric tight, and tie it into the shape of a pad; well clean the glass first, and then pat it all over. The putty will exude sufficiently through the muslin to render the stain opaque. Let it dry hard, and then varnish. If a pattern is required, cut it out in paper as a stencil; place it so as not to slip, and proceed as above, removing the stencil when finished. If there should be any objection to the existence of the clear spaces, cover with slightly opaque varnish.

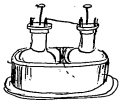
A. EDISON,

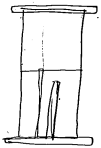
10 & 12 WARD ST.,

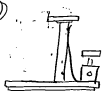
NEWARK, N. J., 187

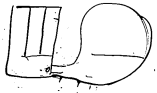
Batteries for

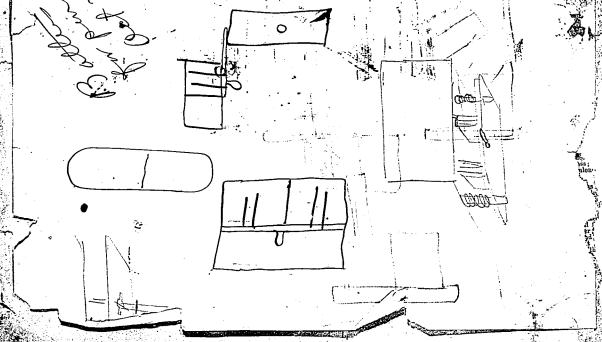


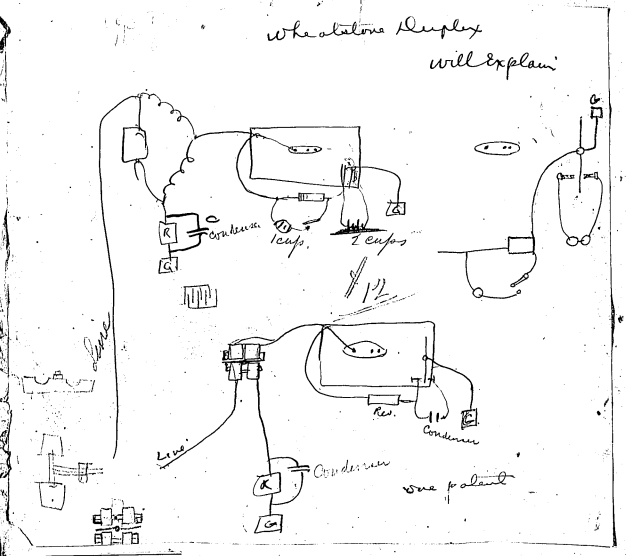












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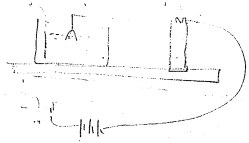
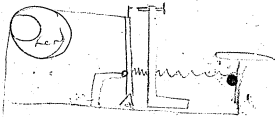
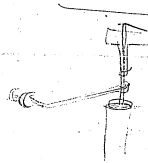
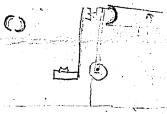
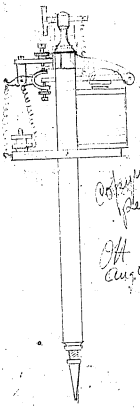
JAY GOULD AND THE "SUN."

PROBABLE EFFECT OF THE CAPTURE OF THE WESTERN UNION BY GOULD.

[To the Editor of The Daily Graphic.]

If, as now seems probable, Jay Gould is to get the Western Union Telegraph into his hands will not the *Sun* see the necessity of ceasing its attacks on the tall tower, the powerful maid, and the Engraging Goulds? The *Sun* is a member of the Associated Press, and so is in the power of the Western Union, and so will be in the hands of Jay Gould as much as the tall tower and those it cares see. This stately honesty of purpose that underlies its pop-gun catapult attacks on the tall tower must then gain catapult attacks on the tall tower must then gain ecstasy, or Gould will shut up the *Sun* office, and Mr. Dana, be cast on the wide, wide world and stand in Printing House square making mouths in a helpless sort of a way at the tall tower, now become hawthornsect of a way at the tall tower, now become hawthornslin. In a short time we may see the practical wisdom of Mr. Dana displayed in praise of his old bugdom of Mr. Dana displayed in praise of his old bugbear, who will have become an eminent financier, instead of a "stock gambler."

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